II. Remarks

Claims 1-14 and 16-20 were pending in this application and have been rejected. By this paper, the Applicants amend claims 1, 4, 7, 8, 10, and 13 to more particularly point out and clarify Applicants' invention. Independent claims 1 and 7 have been amended to recite that the "the first torque generating system is configured to rotate the spindle in the winding direction, so that a predetermined tension is generated in the webbing" and further to recite that the predetermined tension is capable of "positioning the seatbelt for restricting a passenger seated in the seat . . .." The Applicants also add new claim 21, which recites that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle." Support for new claim 21 may be found in paragraph [0080] of the application as filed. After these amendments, claims 1-14 and 16-21 will be pending.

Reconsideration of the application in view of the above amendments and following remarks is respectfully requested.

Rejection under 35 U.S.C. § 112

Claims 1-14 and 16-20 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner stated that "there is no disclosure in the application as filed that 'the torque generated by the first torque generating system is set at a predetermined level defining a preset torque setting.'" *See* Final Office Action at 2. Claims 1 and 7, as amended, no longer recite that "the torque generated by the first torque generating system is set at a predetermined level defining a preset torque setting." Rather,

amended claims 1 and 7 recite that "a predetermined tension is generated in the webbing." Support for this language may be found in paragraph [0023] of the Applicants' application as filed and in numerous other recitations. Accordingly, the Applicants submit that the rejections of claims 1 and 7 are traversed. Moreover, since the rejections of dependent claims 2-6, 8-14, and 16-20 stemmed from the disputed claim language of independent claims 1 and 7, the Applicants submit that the rejections of claims 2-6, 8-14, and 16-20 are traversed. Accordingly, the Applicants believe that all claims satisfy 35 U.S.C. § 112.

Rejections under 35 U.S.C. § 103

Claims 1-4, 16 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication Number 2002/0189880 issued to Tanaka, et al. ("Tanaka") in view of U.S. Patent Number 6,499,554 issued to Yano, et al. ("Yano"). Contrarily, Tanaka and Yano, even in combination, fail to teach or suggest each and every limitation of claim 1, as amended.

Tanaka teaches a seat belt retractor 1 comprising at least a spool 4 for winding a seatbelt webbing 3, a spring means 14 for constantly urging the spool 4 in the belt winding direction and for winding the seatbelt webbing 3. *See* Tanaka at paragraph [0038] and FIG. 4. According to Tanaka, the spring means 14 generates sufficient torque to store the entire seatbelt webbing 3 on the spool 4 when a passenger is not wearing the seatbelt. *See id.* at paragraphs [0038] and [0061]. Tanaka teaches that a motor 10 assists in seatbelt retraction only if the characteristics of the spring change. *See id.* at paragraphs [0061]-[0062]. However,

in accordance with the present invention, the first torque generating system generates a torque that "is capable of positioning the seat belt for restricting a passenger seated in a seat *without causing a substantial passenger's oppressive sensation caused by a fastened condition of the seat belt*." Because the torque is set at a level to avoid causing discomfort, the torque generated by the first torque generating system is insufficient on its own to cause reliable retraction of the seatbelt webbing. Accordingly, in the present invention, it is intended that both the first and second torque generating means would be activated when the seatbelt buckle is unlatched to provide retraction of the webbing. In accordance with Tanaka, when the rewind spring is not worn, the tension of that spring is set at a higher level than in accordance with the present invention which has disadvantages in terms of occupant comfort and convenience.

Yano also fails to teach or suggest the limitation noted as being absent from Tanaka. Like Tanaka, Yano teaches a seat belt retractor 1 comprising at least a reel 4 for winding the seat belt 3 and a spring means 14 for urging the reel 4 in the winding direction of the seat belt. *See* Yano at col. 9, lines 20-43. Furthermore, the spring means 14 generates a sufficient torque to reliably wind the seat belt on the reel 4 when the seat belt is not in use. *See id.* at col. 15, lines 63-67. Because the spring 14 generates a torque sufficient to reliably wind the seat belt, rather than simply to position the seat belt for restricting a passenger seated in the seat, the retractor 1 will have disadvantages in terms of occupant comfort and convenience. In other words, Yano does not teach a retractor that avoids causing a substantial passenger's oppressive sensation caused by a fastened state of the seat belt. Therefore, since neither Tanaka nor Yano, nor a combination of Tanaka and Yano, teaches or suggests the limitation

noted as being absent, Tanaka and Yano, even in combination, do not render claim 1 unpatentable. Accordingly, the Applicants submit that claim 1 is now in a condition for allowance.

Claims 2-4, 16, and 20 depend generally from claim 1, and therefore claims 2-4, 16, and 20 are believed to be allowable for at least the same reason that claim 1 is allowable.

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Yano and further in view of U.S. Publication Number 2003/0201359 issued to Peter ("Peter"). Contrarily, Tanaka, Yano, and Peter, even in combination, fail to teach or suggest each and every limitation of claims 5 and 6.

Peter teaches a belt retractor comprising at least a belt spool 12 and a winding spring 16, which biases the belt spool 12 in the belt band winding direction, and a motor 36. *See* Peter at FIG.1 and paragraphs [0017]-[0019]. Notably, the motor 36 is not configured to assist in the retraction of the belt band. *See id.* at paragraphs [0021] and [0022]. Rather, the motor 36 is configured to assist in the withdrawal of the belt band. *See id.* at paragraph [0022]. Thus, Peter teaches that the winding spring 15 generates a torque sufficient to reliably wind the belt band on the belt spool 12. *See id.* at paragraph [0027]. Because the winding spring 15 generates a torque sufficient to reliably wind the seat belt, rather than simply to position the seat belt for restricting a passenger seated in the seat, the retractor belt retractor will have disadvantages in terms of occupant comfort and convenience. In other words, Peter does not teach a retractor that avoids causing a substantial passenger's oppressive sensation caused by a fastened state of the seat belt.

As discussed above, Tanaka and Yano also fail to teach or suggest the limitation noted as being absent from Peter. Therefore, since claims 5 and 6 depend generally from claim 1, and since Tanaka, Yano, and Peter, even in combination, fail to teach or suggest each and every limitation of claim 1, the combination of Tanaka, Yano, and Peter does not render claims 5 and 6 unpatentable. Accordingly, the Applicants believe that claims 5 and 6 are now in a condition for allowance.

Claims 7-13 and 18-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka, in view of Yano and U.S. Patent Number 6,427,935 issued to Fujii, et al. ("Fujii"). Contrarily, Tanaka, Yano, and Fujii, even in combination, fail to teach or suggest each and every limitation of claim 7, as amended.

Fujii teaches a seat belt retractor 1 comprising a webbing winding reel 2A and a motor 5 as the driving mechanism. *See* Fujii at col. 5, line 66, to col. 6, line 4. The motor 5 winds the webbing only in response to signals from certain sensors in the vehicle. For example, the motor 5 winds the webbing "based on the wearing condition of the webbing and the running condition of the automobile." *See id.* at Abstract. Thus, the motor 5 does not correspond to the "first torque generating system," which must generate a torque in the winding direction "at all times." Since Fujii does not teach a "first torque generating system," Fujii necessarily fails to teach or suggest the limitation that the torque generated by the first torque generating system is capable of positioning the seat belt for restricting a passenger seated in a

seat without causing a substantial passenger's oppressive sensation caused by a fastened condition of the seat belt.

As discussed above, Tanaka and Yano also fail to teach or suggest the limitation noted as being absent from Fujii. Therefore, since Tanaka, Yano, and Fujii, even in combination, fail to teach or suggest each and every limitation of claim 7, the combination of Tanaka, Yano, and Fujii does not render claim 7 unpatentable. Accordingly, the Applicants believe that claim 7 is now in a condition for allowance.

Claims 8-13, 18, and 19 depend generally from claim 7, and therefore claims 8-13, 18, and 19 are believed to be allowable for at least the same reason that claim 7 is allowable.

Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Yano and Fujii, and further in view of U.S. Patent Number 6,485,057 issued to Midorikawa, et al. ("Midorikawa"). Contrarily, Tanaka, Yano, Fujii, and Midorikawa, even in combination, fail to teach or suggest each and every limitation of claim 14.

Midorikawa teaches a seat belt retractor 100 comprising a reel shaft 3 and a DC motor 10. *See* Midorikawa at col. 24, lines 16-41. A spiral spring biases the reel shaft 3 in the direction of seat belt retraction. *See id.* at col. 24, lines 27-31. Notably, Midorikawa does not teach a particular torque setting for the spiral spring. Thus, Midorikawa fails to teach or suggest that the spring has a preset torque setting capable of positioning the seat belt for restricting a passenger seated in a seat

without causing a substantial passenger's oppressive sensation caused by a fastened condition of the seat belt.

As discussed above, Tanaka, Yano, and Fujii also fail to teach or suggest the limitation noted as being absent from Midorikawa. Therefore, since claim 14 depends generally from claim 7, and since Tanaka, Yano, Fujii, and Midorikawa, even in combination, fail to teach each and every element of claim 7, the combination of Tanaka, Yano, Fujii, and Midorikawa does not render claim 14 unpatentable. Accordingly, the Applicants submit that claim 14 is now in a condition for allowance.

Claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Yano and further in view of Midorikawa. Contrarily, Tanaka, Yano, and Midorikawa, even in combination, fail to teach or suggest each and every limitation of claim 17.

Since claim 17 depends generally from claim 1, and since Tanaka, Yano, and Midorikawa, even in combination, fail to teach each and every element of claim 1, the combination of Tanaka, Yano, and Midorikawa does not render claim 17 unpatentable. Accordingly, the Applicants submit that claim 17 is now in a condition for allowance.

New Claim

New claim 21 recites that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle." The cited art, even in combination, fails to teach or suggest each and every element of new claim 21. First, since new claim 21 depends generally from claim 7, new claim 21 is patentable for the same reasons that claim 7 is patentable, as set forth above.

Moreover, new claim 21 is also patentable because the cited references, even in combination, fail to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle."

Tanaka discloses a seatbelt retractor equipped with a spring and a motor. *See* Tanaka at Abstract. As the examiner acknowledges, "Tanaka et al does not disclose a webbing action detecting system for detecting whether the webbing is drawn out, the webbing is wound, or the webbing is in a stopping state." Office Action at 7-8. Thus, Tanaka necessarily also fails to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle."

Yano discloses a seat belt retractor having a reel 4 for winding a seat belt 3, a spring means 14 for urging the reel 4 in the belt winding direction, a motor 10 for generating a rotational torque, a power transmission gear mechanism 11 and speed reducing mechanism for transmitting the rotational torque from the motor 10 to the reel 4. *See* Yano at FIG. 1 and col. 9, lines 20-43. Yano does not teach or suggest any system for detecting the webbing action of the seat belt. Thus, Yano necessarily also fails to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle."

Peter discloses a belt retractor for a vehicle safety belt. *See* Peter at Abstract. The belt retractor includes a winding spring 16, which biases a belt spool 12 in the winding direction, and a motor 36. *Id.* at FIG. 1 and paragraphs [0017]-[0019]. The motor is controlled by a control unit 38, which receives signals from a belt spool sensor 44. *Id.* at FIG. 1 and paragraph [0019]. The belt spool sensor 44

detects the rotation of the belt spool 12. *Id.* In operation, the motor 36 supports the rotation of the belt spool 12 in the withdrawal direction, reducing the force required to overcome the winding spring 16 and withdraw the safety belt. *Id.* at paragraphs [0021]-[0022].

While Peter does disclose a belt spool sensor 44, which detects the *rotation* of the belt spool 12, Peter does not teach or suggest that the belt spool sensor 44 detects the rotary *direction* of the belt spool 12. Moreover, Peter does not teach or suggest that the belt spool sensor detects the rotary *speed* of the belt spool 12. Thus, Peter fails to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle."

Fujii discloses a seat belt retractor comprising a spool 2 situated on a spool shaft 15, a base frame 3 rotatably supporting the spool shaft 15, a webbing W wound around the spool 2, and a motor 5 for rotating the spool 2. *See* Fujii at Abstract, FIG. 1, and col. 6, lines 10-17. A control unit 9 controls the operation of the motor 5 based on signals received from various sensors, including a webbing withdrawal detecting unit 40 and a spool rotation detecting unit 50. *Id.* at FIG. 7 and col. 9, lines 8-25. In operation, the webbing withdrawal detecting unit 40 detects the withdrawal of the webbing W from the spool 2. *Id.* at col. 9, lines 33-53. The spool rotation detecting unit 50 detects the *direction* of withdrawing or winding of the webbing W by detecting the rotational *direction* of the spool 2. *Id.* at col. 9, line 66 to col. 10, line 3. The spool rotation detecting unit 50 also detects a stopping state of the spool 2. *Id.* Notably, Fujii does not teach or suggest that the rotation detecting

unit 50 detects the rotational *speed* of the spool 2. Thus, Fujii fails to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary *speed* and a rotary direction of the spindle."

Midorikawa discloses an automotive passenger restraint and protection apparatus having a seatbelt protraction and retraction amount detecting device. *See* Midorikawa at Abstract. The apparatus comprises a reel shaft 3 for retracting and protracting a seat belt. *Id.* at FIG. 1 and col. 24, lines 16-18. The reel shaft 3 is coupled to a central shaft of a reel shaft pulley 5, which is in turn coupled to a DC motor pulley 6 via a power transmission belt 7. *Id.* at FIG. 1 and col. 24, lines 25-27. The DC motor pulley is coupled to a DC motor 10. *Id.* at FIG. 1 and col. 24, lines 39-40. When the seatbelt is protracted or retracted, the reel shaft 3 is rotated, and the rotation is transmitted through the reel shaft pulley 5, the power transmission belt 7, and the DC motor pulley 6 to rotate the rotary shaft of the DC motor 10. *Id.* at col. 82, lines 1-6. The rotation of the DC motor generates an electromotive force, which in turn produces voltage signals in several interface circuits. *Id.* at col. 82, lines 6-7. A suitable micro processing unit (MPU) 14 analyzes these voltage signals to determine the rotational speed and direction of the DC motor 10. *Id.* at col. 82, lines 1-68. By analyzing these voltage signals, the MPU 14 determines the speed and direction of seat belt protraction or retraction. *Id.* Notably, however, the MPU 14 determines the speed and direction of seat belt protraction or retraction by measuring the rotational speed and direction *of the DC motor* 10. Thus, Midorikawa fails to teach or suggest the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction *of the spindle*."

Because none of the cited references teaches or suggests the limitation that "the webbing action detecting system detects the webbing action by detecting a rotary speed and a rotary direction of the spindle," the cited references, even in combination, fail to teach or suggest each and every limitation of new claim 21. Thus, for this additional reason, the cited references do not render new claim 21 unpatentable. Accordingly, the Applicants submit that new claim 21 is in a condition for allowance.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is requested.

Respectfully submitted,

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/Joshua E. Ney/
Joshua E. Ney, Reg. No. 66,652
Attorney for Applicants

BRINKS HOFER GILSON & LIONE
524 SOUTH MAIN STREET
SUITE 200
ANN ARBOR, MI 48104
(734) 302-6000